



Impact of air pollution control measures and weather conditions on asthma during the 2008 Summer Olympic Games in Beijing

Author(s): Li Y, Wang W, Wang J, Zhang X, Lin W, Yang Y
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Abstract:

The alternative transportation strategy implemented during the 2008 Summer Olympic Games in Beijing provided an opportunity to study the impact of the control measures and weather conditions on air quality and asthma morbidity. An ecological study compared the 41 days of the Olympic Games (8 August-17 September 2008) to a baseline period (1-30 June). Also, in order to emphasize the impact of weather conditions on air quality, a pollution linking meteorological index (Plam) was introduced to represent the air pollution meteorological condition. Our study showed that the average number of outpatient visits for asthma was 12.5 per day at baseline and 7.3 per day during the Olympics-a 41.6% overall decrease. Compared with the baseline, the Games were associated with a significant reduction in asthma visits (RR 0.58, 95%CI: 0.52-0.65). At 16.5 visits per day, asthma visits were also significantly higher, during the pre-Olympic period (RR 1.32, 95% CI: 1.15-1.52). The study also showed that the RR of asthma events on a given day, as well as the average daily peak ozone concentration during the preceding 48-72 h, increased at cumulative ozone concentrations of 70 to 100 ppb and 100 ppb or more compared with ozone concentrations of less than 70 ppb ($P < 0.05$). We concluded that along with "good" weather conditions, efforts to reduce traffic congestion in Beijing during the Olympic Games were associated with a prolonged reduction in air pollution and significantly lower rates of adult asthma events. These data provide support for efforts to reduce air pollution and improve health via reductions in motor vehicle traffic.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors

Air Pollution: Interaction with Temperature, Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): NO, NO₂, NO_x, CO, SO₂

Geographic Feature:

resource focuses on specific type of geography

Urban

Climate Change and Human Health Literature Portal

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact:

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified